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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/690,565

10/23/2003

Hiroshi Tanaka

67161-124

5966

7590

11/30/2006

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EXAMINER

ALANKO, ANITA KAREN

ART UNIT

PAPER NUMBER

1765

DATE MAILED: 11/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

6

Office Action Summary	Application No. 10/690,565	Applicant(s) TANAKA, HIROSHI	
	Examiner Anita K. Alanko	Art Unit 1765	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 9/13/06 amdt.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
4a) Of the above claim(s) 8 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-7 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 3-4 and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mayer et al (US 2004/0065540 A1) in view of Takekuma (US 5,580,607) or Shirakawa et al (US 6,222,161 B1), and in view of Holsteins et al (US 2004/0045589 A1).

Mayer discloses a substrate cleaning [0047] device (Fig.9 or Fig.11) comprising:

a plurality of heat sources 832, 838, each used for heating (“multizoned heater” lines 29-36 of paragraph [0082]);

temperature controller (“time varying control of a heater allows dynamic variation of temperatures during the treatment process” last sentence of paragraph [0082]);

substrate holder 806 to hold substrate 808 being separated from said heat sources with a gap 812 (or near backside of substrate 836), and being opposite to said heat sources (see Figure 9 or Figure 11); and

liquid filler 826 (or that liquid 835 at the backside of the substrate 836) provided to fill [0058] said gap with liquid.

As to amended claim 1, Figures 9 and 11 depict that the heaters are concentric, however this concentricity is not explicitly cited. Concentric heaters are expected in Mayer because the apparatus has circular symmetry, and therefore the heaters are expected to be concentric. In the alternative, Takekuma (temperature controllers 34a-c to control temperatures in zones (col.10,

lines 63-67) with a heater (col.12, line 17)) and Shirakawa (see abstract, heater for each region) both teach the advantage of more uniform processing by having a plurality of heat sources each having a surface opposite to the substrate along a different concentric circle.

Thus, it would have been obvious to have concentric heaters in the apparatus of Mayer in order to have more uniform processing as taught by Takekuma or Shirakawa.

Still further as to amended claim 1, Mayer does not explicitly disclose that the substrate holder holds an edge of the substrate. Holsteyns teaches that it is useful to hold a substrate at its edges during rotary processing ([0038]). It would have been obvious to one with ordinary skill in the art to use a substrate holder that holds an edge of the substrate in the apparatus of Mayer because Holsteyns teaches that this is a useful configuration for rotary processing.

As to claim 3, Mayer discloses said substrate is rotated 866.

As to claim 4, Mayer discloses chuck pins [0053].

As to claims 6-7, Mayer does not disclose the composition of the chuck pins. However, Mayer teaches that a useful composition for use in the cleaning device are resins such as polyvinyl chloride because they can withstand temperature and corrosive conditions of etching operations [0053]. Etching operations include cleaning operations. It would have been obvious to one with ordinary skill in the art that the chuck pins comprise resin such as PVC in the apparatus of Mayer because Mayer teaches that PVC is a useful material in cleaning devices because they can withstand temperature and corrosive conditions of etching operations.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Mayer et al (US 2004/0065540 A1) in view of in view of Takekuma (US 5,580,607) or Shirakawa et al (US

6,222,161 B1), and in view of Holsteins et al (US 2004/0045589 A1), as applied to claim 1, and further in view of Hasegawa et al (US 5,677,622).

The discussion of modified Mayer from above is repeated here.

As to claim 5, Mayer does not disclose what the heater is, and thus does not disclose the specific “Peltier device”. Mayer discloses to use conventional means to control the heaters [0069].

Hasegawa teaches a useful way to control the temperature during etching. Hasegawa teaches that a substrate holder 20 may comprise a layer of Peltier elements 40, including Peltier elements 45 in the center area and Peltier elements 47 in an outer area (col.3, lines 47-64). The advantage of using Peltier elements is that it provides for localized temperature control of each region of the wafer 14 (col.3, lines 65-67).

Hasegawa teaches that different chucks may be used such as mechanical chucks (col.4, line 62) – in which case the wafer is separated from the holder by a gap as in the apparatus of Mayer.

It would have been obvious to one with ordinary skill in the art to use Peltier devices in the apparatus of Mayer because Hasegawa teaches that they are useful for providing localized temperature control of each region of the substrate.

Response to Amendment

The 35 USC 112 rejection is withdrawn in view of the claim amendments citing a substrate holder and cleaning liquid filler section.

The 35 USC 102 rejection is withdrawn, however the claims remain rejected over Mayer under 35 USC 103.

Response to Arguments

Applicant's arguments filed 9/13/06 have been fully considered but they are not persuasive. Applicant argues that Mayer does not disclose concentric heaters. In response, while this is not explicitly described, it is strongly suggested since the apparatus has circular symmetry. To further teach the obviousness of this, Takekuma (US 5,580,607) or Shirakawa et al (US 6,222,161 B1) are applied to teach concentric heaters.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anita K. Alanko whose telephone number is 571-272-1458. The examiner can normally be reached on Mon-Fri until 2:30 pm (Wed until 11:30).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nadine Norton can be reached on 571-272-1465. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Anita K. Alanko

Anita K Alanko
Primary Examiner
Art Unit 1765